Texas Board of Professional Engineers

Licensing FE/CBT Webinar
October 2015

http://engineers.texas.gov/outreachsurvey

Engineering for a better Texas

Welcome

- Lance Kinney, P.E.
  - Executive Director
  - Lance.Kinney@engineers.texas.gov

Welcome

- **Lance Kinney, PhD., P.E.**, Executive Director
  - Lance.Kinney@engineers.texas.gov
- **David Howell, P.E.**, Deputy Executive Director
  - David.Howell@engineers.texas.gov
- **Robert Opiela, P.E.**, Director of Licensing
  - Robert.Opiela@engineers.texas.gov

Webinar Info

- Webinar audio can be through your computer speakers or through the phone.
- All attendees will be in Listen-only mode.
- Questions will be handled in writing through the webinar software and answered by the presenter.
- If there are questions, not addressed, please email the presenter.
- During the presentation, use the Question feature in the webinar software, not the chat feature or the hand raising feature.

Agenda

- Overview of Engineering Practice Act
- Benefits of Licensure
- Exams / CBT
- Application Process

Website and Social Media

http://engineers.texas.gov

- Facebook: Texas Board of Professional Engineers
- Twitter: TBPE_Exec
- LinkedIn: Texas Board of Professional Engineers
- RSS Feed on our website: http://engineers.texas.gov
- YouTube: https://www.youtube.com/channel/UCm0YTnjR3StveBxWhCT4MiA

Poll

Who is attending the webinar?

- David Howell, P.E.
  - Deputy Executive Director
  - David.Howell@engineers.texas.gov

Protect the Public

- Licensing Engineers
- Enforcement of Engineering Practice Act
- Requiring Continuing Education
- Educate – PEs, Officials, Potential PEs, Public

History of TBPE

- Created by Texas Legislature (45R) in 1937
- New London School Explosion
  - 300 students and teachers killed
  - Result of improperly designed mechanical and electrical devices
- Established a Board to regulate the practice of engineering through licensing and rules of practice

TBPE

1937

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TBPE

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Protect the Public

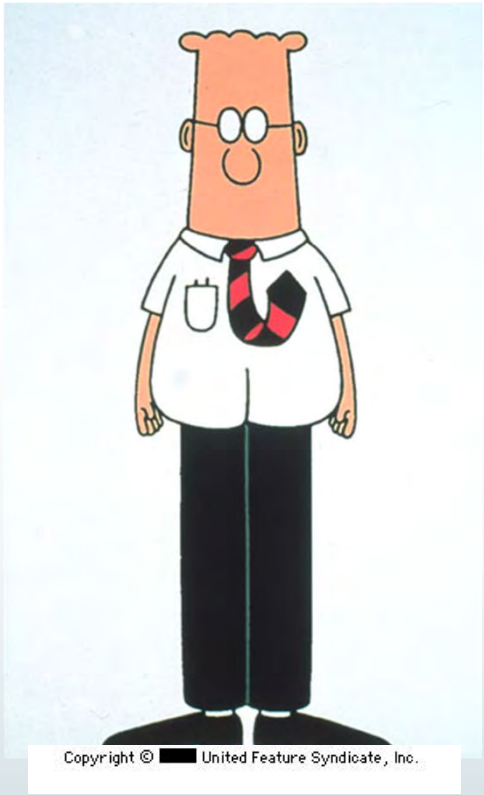
Licensing Engineers

- The 3 “E”s of licensure
  - Education
  - Experience
  - Exams
- The 4th “E”
  - ETHICS!

Public Visibility

What does the general public think?

- What is Engineering?
- Why is it important?
- What is a Professional Engineer?
- Who can be one?



TBPE

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Outreach Publications

Applicants

How to Become a Licensed P.E.

Benefits of Being a Professional Engineer.

Benefits of Licensure

- Serves as a protection of public health, safety, and welfare.
- It shows you have accomplished a recognized standard.
- Makes you equal with other professionals. Many other professions require that you are licensed to practice.

Benefits of Licensure

- Sets you apart from others in your profession. (Marketability)
- “Portable” credential you can keep throughout your career.
- Law - Only Licensed Engineers Can Offer Services to the General Public
- Required for Some Positions

Benefits of Licensure

- Much More than Just Passing an Exam!
- Increased Responsibility and Authority.
- You Will be in Responsible Charge of Your Engineering Projects.
- You Will be Held Accountable for Your Actions as an Engineer.

Standard Licensure Process Flow

- 4 Year Degree
- FE Exam
- Work Experience
- Apply for licensure and permission to take PE Exam
- PE Exam
- PE License

Requirements for Licensure

- **Education**
- **Experience**
- **Examinations**

Poll

What is your academic level?

Education

- EAC/ABET Accredited Engineering Programs
- Non-Accredited Programs Including Non-ABET Engineering Degrees and Related Science degrees (Math, Sciences, Engineering Technology)
- Information concerning ABET accreditation available at www.abet.org.

Experience

- 4 Years of creditable engineering work with ABET Accredited engineering Degree
- 8 Years with Non-Accredited Degree or qualifying Related Science degree
- Experience credit for Advanced Engineering Degrees from ABET accredited programs

Examinations

- Fundamentals of Engineering (FE)
- Principles & Practices of Engineering (PE)

Poll

Are you taking the FE?

FE Exam Content

- 7 free-standing, discipline-specific exams
    - Chemical, Civil, Electrical and Computer, Environmental, Industrial, Mechanical, Other Disciplines
  - No separate morning or breadth module
  - Each exam covers material commonly found in that discipline's curriculum.
  - FE exam uses both the International System of Units (SI) and the US Customary System (USCS).

FE Exam Disciplines

Through May 2015

• Chemical	6.7%
• Civil	38%
• Electrical	9.5%
• Environmental	5.1%
• Industrial	1.9%
• Mechanical	27.6%
• Other	11.2%

Poll

What is your engineering discipline?

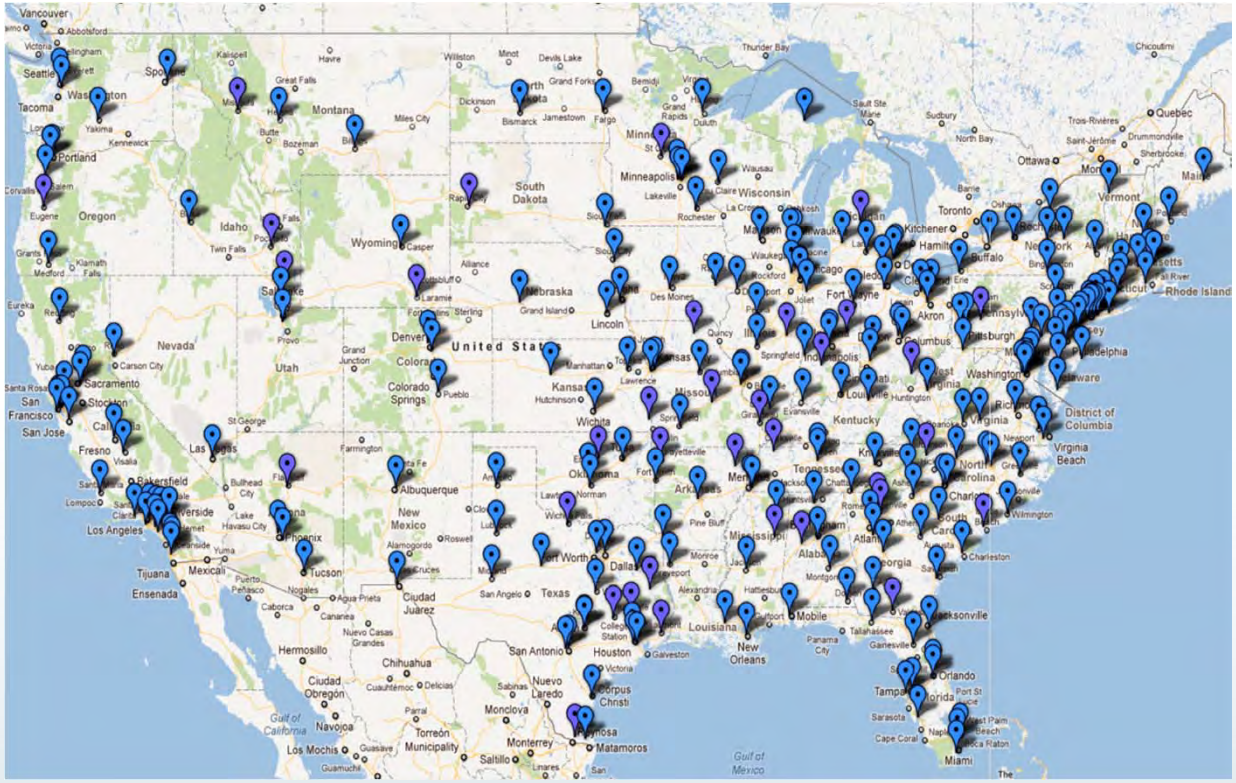
FE Civil exam spec

- Mathematics
- Probability and Statistics
- Computational Tools
- Ethics and Professional Practice
- Engineering Economics
- Statics
- Dynamics
- Mechanics of Materials
- Materials
- Fluid Mechanics
- Hydraulics and Hydrologic Systems
- Structural Analysis
- Structural Design
- Geotechnical Engineering
- Transportation Engineering
- Environmental Engineering
- Construction
- Surveying

Computer Based Testing

- All FE exams as of January 1, 2014
- Price $225
  - includes test center seat, examination, and results release
- Testing windows
  - January–February, April–May, July–August, October–November
  - **Changes to year-round January 2016**
- Pearson VUE testing centers
- NCEES will release results directly to examinees within 4–10 days.

Pearson VUE



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Most Active Test Centers

- Texas A&M University
- US Military West Point
- Pearson Professional Centers-Seoul, South Korea
- Purdue University
- Pearson Professional Centers-Houston TX
- Missouri University of Science & Technology
- Pearson Professional Centers-Denver CO
- Pearson Professional Centers-Baton Rouge LA
- Pearson Professional Centers-Atlanta GA
- Pearson Professional Centers-San Juan PR

Test Locations in Texas

- Dallas area (2 centers)
- Waco
- Tyler
- Texas A&M Univ.
- Abilene
- Austin (2)
- Houston area (4)
- San Antonio (2)
- Lamar University
- Lubbock
- Midland
- Amarillo
- Corpus Christi
- El Paso

CBT - General

- Continuous Registration (24/7)
- Register online through NCEES.org
- Pay all exam-related fees directly to NCEES via credit card
- On exam day, attest to abide by rules and policies found in the NCEES Examinee Guide

CBT – Volume for 2015

	FE (NCEES)*	FE (TX)
Jan - May 2015	12,835	2034

* First time takers from EAC ABET Programs

CBT – Top Five

- California
- Texas
- New York
- Pennsylvania
- Virginia

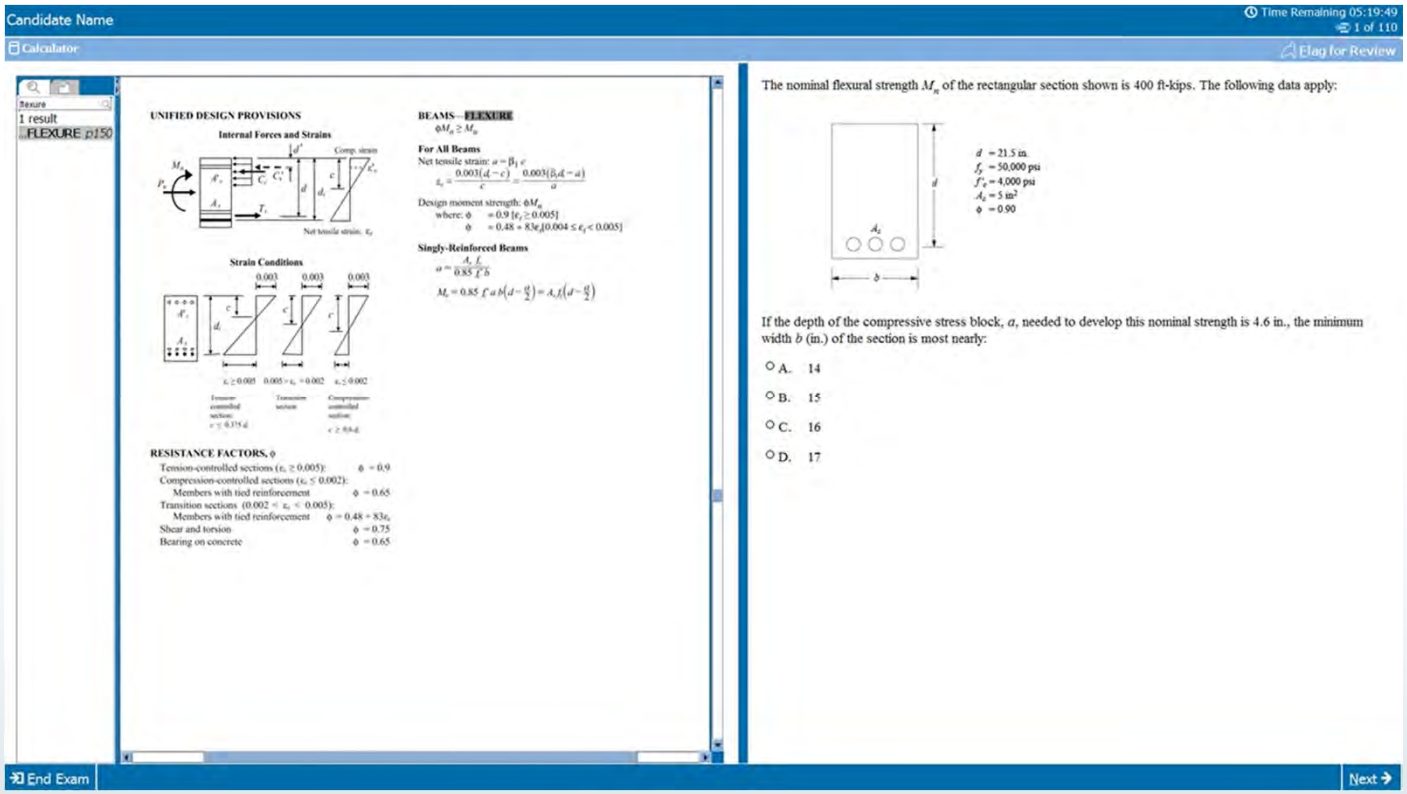
CBT - General

- Exam and references on computer
- Split screen
- 24-inch monitor
- FE references
  - Searchable
  - Available on NCEES website
- Specific Approved Calculators
- Security – No Other Books or References, phones, iPads, etc.

CBT FE Exam - Format

- 110 questions
- 6-hour test center appointment
  - Tutorial–8 minutes
- Maximum Exam time–5 hours, 20 minutes
  - Scheduled break–25 minutes

CBT FE Exam - Format



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NCEES Resources

- NCEES Examinee Guide
- CBT exam-day experience video release
- Short “how-to” videos
  - How to search the FE Reference Handbook
  - Hotkeys
  - Onscreen calculator
  - Reusable booklet for scratch work
  - How to flag items for review
  - Managing Time on exam day

National Pass rates

Through May 2015 (first-time takers)

- Chemical 77%
- Civil 70%
- Electrical 75%
- Environmental 75%
- Industrial 64%
- Mechanical 82%
- Other 81%

Engineer in Training Certification

- Some Employers Want EIT Certification. Demonstrate Applicant is on the Path to Licensure
- Optional – Not Required for PE exam.
- Procedure:
  - Application form and $15 fee
  - Official Transcripts (degree evaluation, if foreign)
  - Exam Verification if taken outside of Texas

PE Exam Transition

- Evaluate item banks
- Potential for a virtual library of reference books hosted by NCEES
- Development of a supplied reference
- Develop a protocol for using innovative item types

PE Exam - Format

- Multiple Choice
- 80-100 Questions Total
- Breadth Section ~ 40 questions in morning session (same for all examinees in discipline)
- Depth Section ~40 questions in afternoon session (depend on module selected)
- Select Discipline when registering
- OPEN BOOK!

Exams

- PE Exams are offered twice per year (April / October)
- Register through NCEES – link on TBPE page
- Registration open ~6 months before exam
- Be aware of registration and application deadlines!

Exams

- FE Exam – no application. Just sign up. Must be within 2 semesters of graduating.
- FE Exam – may take as many times as necessary.

- PE Exam – must apply to board first.
- PE Exam – may take 4 times.

Upcoming Rule Change

- Decoupling
  - Would allow PE exam to be taken while experience is being obtained.
  - Increased flexibility for applicants
  - Does not reduce licensing requirements.
  - Requires system modifications
  - Approved in August, Rules to be Proposed in November

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Application

- Form - online
- Transcripts
  - Originals Directly from Institution
  - Official Copies of Undergraduate Degrees when with Accredited Degree
  - Foreign Degree Evaluation

Application

- Supplementary Experience Records
- References
  - Regular Application 3 PE's
  - Waiver Request 5 PE's
- Ethics Evaluation
- Fee ($80) -online

Application

- Other
  - Documentation of English Proficiency
  - Criminal History Records Check
  - Verification of Examinations (if taken in another state)

Supplementary Experience Record (SER)

- Detailed description of engineering work
- Distinguish work personally performed from group efforts
- Project record or diary
- Form is available on TBPE Website

Supplementary Experience Record (SER)

- Experience can be obtained in Texas, other States, or Overseas
- Internships, Co-ops may be creditable if More than Three Months in Duration
- No credit for Teaching Assistant work

PE References

- 3 PE References Required for your Work Experience
  - 5 for a waiver of the FE
- Minimum 1 PE Reference for each engagement
  - All claimed engineering experience
- Fill out form / Sign SER pages
  - Must address Personal Character, Readiness for Licensure and vouch for the Engineering Experience
- Can be licensed in any state / May be inactive

PE References

- All references are confidential
- References can be directly sent to the board or collected and sent with the application
- Keep track of names, contact info for possible PE references
- It is possible to get a reference in advance (from a job you have left, etc.)
- You can have a PE review prior work if no current PE is available

Thank You

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